TIGGER Transit Investments for Greenhouse Gas and Energy Reduction

U.S. Department of Transportation
Federal Transit Administration

Courtesy of CTTRANSIT

Project name: CTTRANSIT Hybrid Bus and Stationary FC Installation

Transit agency: Connecticut Department of Transportation

Location: Statewide, Connecticut

TIGGER goal: Energy reduction

FTA region number: I

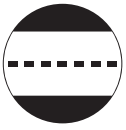
Award amount: $7,000,000

Congressional district: CT-1; CT-2; CT-3; CT-4; CT-5

Funding mechanism: Recovery Act (ARRA)

CTTRANSIT Boosts Efficiency with Hybrid Buses, Stationary Fuel Cell

Connecticut Transit (CTTRANSIT) is boosting both vehicle efficiency and building efficiency by adding 31 diesel-electric hybrid buses to its fleet and installing a stationary fuel cell as part of a $7 million TIGGER-funded project.


Vehicle Project


Fuel Cell Project

Connecticut Transit (CTTRANSIT) is owned by the Connecticut Department of Transportation. The agency provides fixed-route transportation services to metro Hartford, New Haven, and Stamford. In 2007, the agency transported nearly 27 million passengers. The Hartford division is the largest of the three areas, operating a total of 237 buses over 30 local routes and 12 express routes.

Vehicle efficiency is improved because these innovative buses are powered by an internal combustion, clean diesel engine paired with an electric motor. The design allows the hybrids to store energy in nickel metal hydride batteries, giving the buses extended range, and making them 25% more fuel efficient than comparable clean diesel vehicles. The near-zero emissions buses will help the agency reduce fleet greenhouse gas (GHG) emissions and in doing so, this project supports state emission reduction goals. Additionally, it will cut operational costs by reducing diesel fuel consumption in the transit fleet.

CTTRANSIT is the first transit system in the United States to receive this new model of bus from New Flyer, Inc., which previously supplied hybrid diesel electric buses to the agency. The latest models—fourteen 40-foot vehicles that seat 38 passengers, and seventeen 35-foot buses that carry 30 riders—are also equipped with efficient LED lighting inside and out. Furthermore, the buses have more windows for passengers and significant upgrades in noise reduction.

The new state-of-the-art vehicles will be supplied to the New Haven and the Waterbury divisions. The price tag of a new 40-foot bus is about $560,000, compared to the $385,000 approximate cost of a comparable clean diesel bus. With the addition of

Courtesy of CTTRANSIT

these new diesel-electric hybrid buses, CTTRANSIT will now operate 33 diesel-electric hybrid buses and 5 hydrogen fuel cell-powered buses.

Impact:
The diesel-electric hybrid buses and stationary fuel cell system will reduce CTTRANSIT's diesel fuel consumption – thus reducing greenhouse gas emissions, cutting the agency's fuel costs, and improving local air quality.

The second part of the project involves deployment of a stationary fuel cell system at CTTRANSIT's Hartford division. A fuel cell system is an electrochemical device that combines hydrogen fuel and oxygen from the air to produce electricity, heat, and water. They have proven to be quiet, reliable, quick-starting, and virtually emissions free. The transit agency has selected UTC Power to manufacture a 400-kilowatt fuel cell system that will use natural gas to replace its current diesel fuel-burning backup generators. This will save thousands of gallons of diesel fuel. The expected system efficiency will be approximately 80%, more than doubling the 35% efficiency of fossil fuel-powered generators. As a bonus, the fuel cell will be installed in a combined heat and power configuration to not only generate electricity for the facility but also provide hot water.

Because the fuel cell is essentially emissions-free, it will reduce GHG emissions and air contaminants. Such a non-polluting energy source will allow CTTRANSIT to add primary and backup generating capacity without requiring additional air quality permitting. This stationary system can also provide improved electrical reliability through local distributed power generation that is independent of the electrical grid.

By choosing Connecticut-based UTC Power, which is expected to supply the fuel cell system, the agency is helping sustain local jobs. The company may also benefit from the exposure given to this high-profile public project, which other transit agencies can adopt throughout the United States.

About TIGGER

The Transit Investment for Greenhouse Gas and Energy Reduction (TIGGER) Program *was established in 2009 by the U.S. Department of Transportation's Federal Transit Administration (FTA). Designed to reduce energy use and greenhouse gas emissions in transit agencies around the country, the TIGGER Program made funds available for capital investments that would reduce greenhouse gas emissions or lower the energy use of public transportation systems. An initial $100 million in American Recovery and Reinvestment Act grants funded 43 competitively-selected transit projects. In 2010, the FTA provided an additional $75 million in grants to fund 27 new TIGGER projects. These 70 projects are employing a variety of technologies to meet the program goals, including solar installations, building efficiency improvements, wind technology, wayside energy storage for rail, and purchase of more efficient buses. In fiscal year 2011, FTA provided an additional $49.9 million to continue the program.*

For More Information

CTTRANSIT:
www.cttransit.com

FTA TIGGER:
www.fta.dot.gov/TIGGER

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U.S. Department of Transportation
Federal Transit Administration
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